



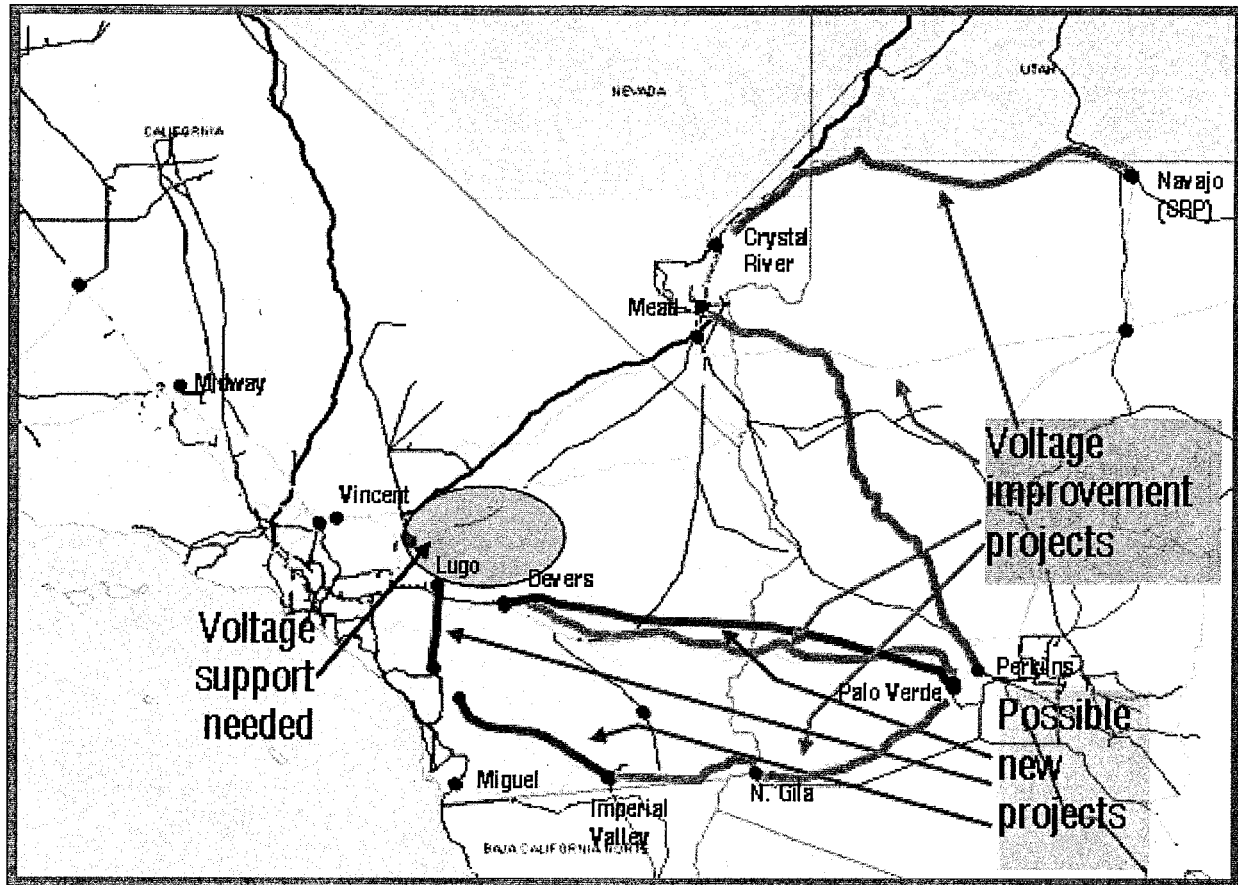
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Figure 13: Arizona-California area transmission system



All of the planned short-term upgrades on Path 49 are now complete except for the Devers reactive support and the Imperial Valley-El Centro phase shifter. However, the WECC granted a seasonal rating increase of 505 MW on Path 49 for Summer 2006 based on implementation of suitable operating procedures until this apparatus is installed.

A more detailed picture of these short-term Path 49 improvements is shown in red in Figure 14. When completed, these upgrades will result in year-round increase of the Path 49 rating from 7,550 MW to 8,055 MW.

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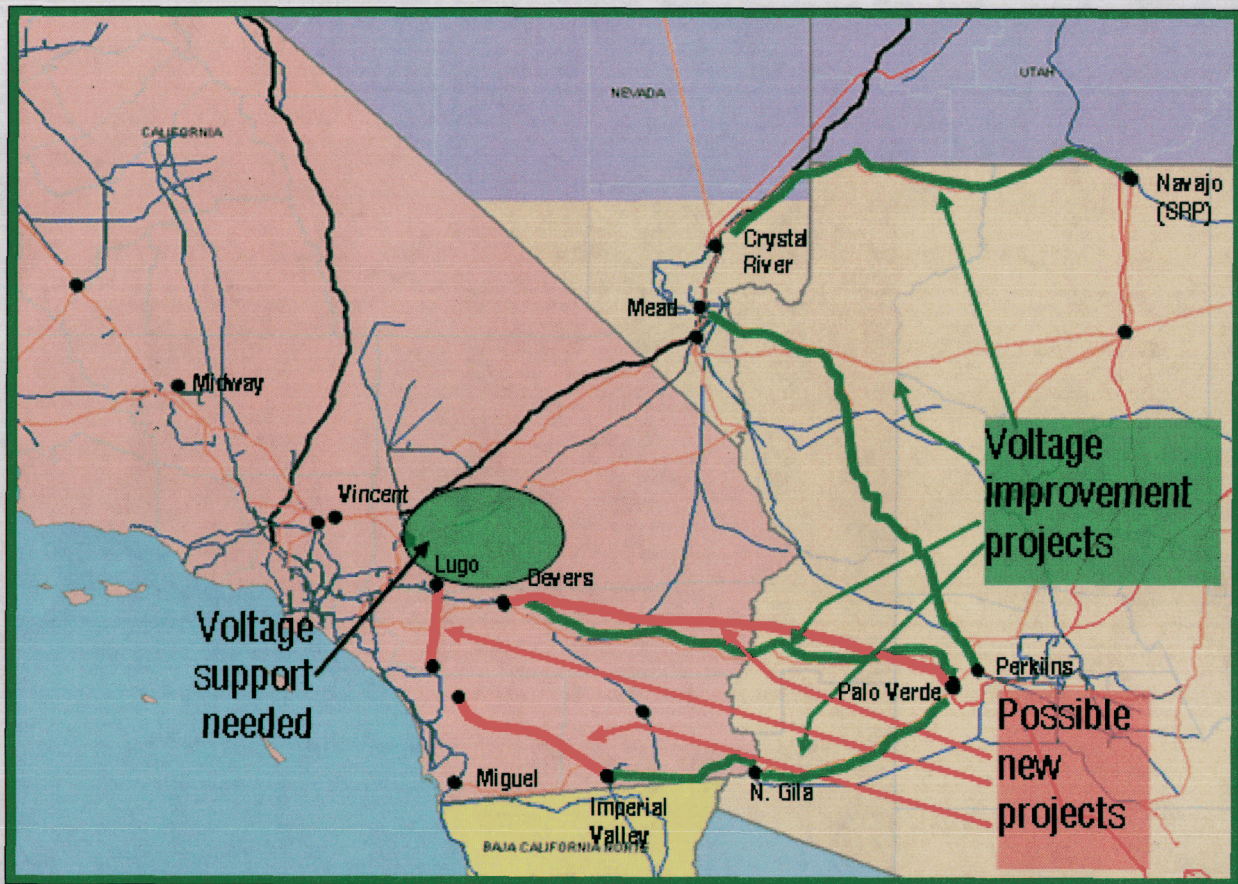


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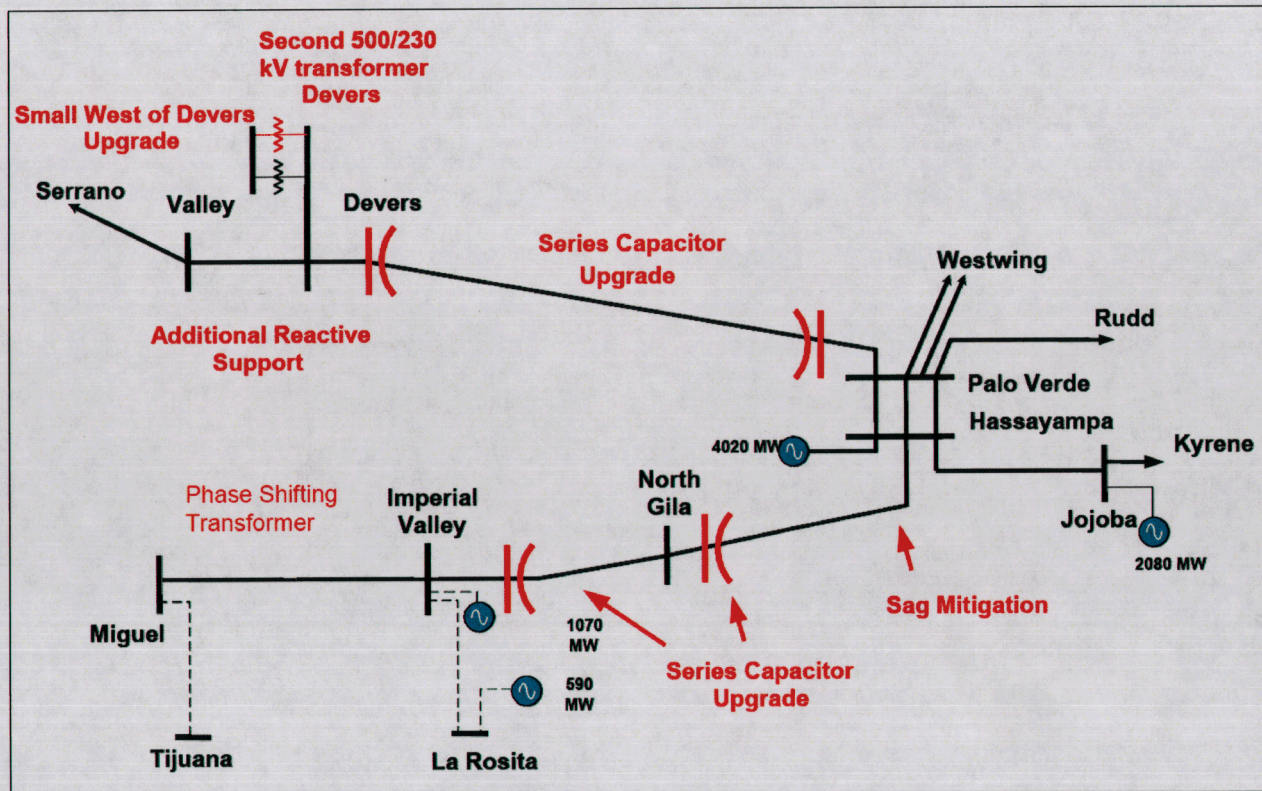
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**Figure 14: Arizona-California short-term transmission improvements**

In the longer-term, the next new addition expected to occur by 2008 is the EOR 9,300 MW upgrade project. This involves upgrades of series capacitors in Arizona, as noted above, and is expected to increase the path rating by 1,250 MW. The project is currently in the final stage of WECC's path rating review process. The next major line addition planned is a second Palo Verde - Devers 500 kV transmission line sponsored by Southern California Edison area, with a planned in-service date of 2009. The project is still in licensing. If built, it will add another 1,200 MW of capability to Path 49 (based on the WECC approved path rating study). A subsequent 500kV line addition, also in licensing, is proposed from Imperial Valley to the west by San Diego Gas and Electric. It has a planned completion date of 2010, but should have minimal impact if any on the Path 49 rating.

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## Appendix F: Arizona planned EHV transmission additions

Status	Project	Justification	CEC needed
<b>2006 completion</b>			
2005 construction start	Palo Verde-Devers and Hassayampa-North Gilla 500 kV line upgrades	The upgrading of the series capacitors allows for the increase in transfer capability among Arizona, Southern Nevada and Southern California and has an economic value from an adequacy stand point.	No information filed <i>Not Required</i>
<b>2008 completion</b>			
2007 construction start	Hassayampa-Pinal West 500kV line	To accommodate load growth and access to energy sources in the central Arizona area.	Siting Case #124, issued May 2004
2007 construction start	Interconnection of Westwing - South 345 kV via new Pinal West 500/345 kV Substation	To reinforce Tucson Electric Power Company's EHV system and to provide a higher capacity link for the flow of power from the Palo Verde area into TEP's service territory. SWTC, ED2, ED3, and ED4 are also participants.	Included in Siting Case #124
2007 construction start	EOR 9300MW Upgrade Project	To increase East of River (Path 49) transfer capability by 1250MW by upgrading series compensation on Mead-Perkins & Navajo-Crystal 500kV lines, by-passing Perkins phase-shifting transformer, etc. SRP is project sponsor representing 16 owners.	Not required
2007 construction start	Palo Verde-Pinal West 500kV	To provide access to resources from the Palo Verde area generation to the Pinal West Substation	CEC Ordered in Case 124, Issued May 24, 2004
2007 construction start	Pinal West-Santa Rosa 500kV	To provide access to resources from the Palo Verde area generation to the Santa Rosa Substation	CEC Ordered in Case 126, Issued August 25, 2005
2007 construction start	Palo Verde - Pinal West 500 kV (Reference SRP Ten-Year Plan 2006 filing)	To provide access to resources from the Palo Verde area generation to the future (beyond this Ten-Year Plan) 500/69 kV station located at the Pinal West substation.	CEC Ordered in Case 124, Issued May 24, 2004
2007 construction start	Pinal West - Southeast Valley 500 kV (Reference SRP Ten-Year Plan 2006 filing)	To Palo Verde area generation to the Santa Rosa 500 / 230 kV Substation	CEC Ordered in Case 126, Issued August 25, 2005
<b>2009 completion</b>			
2008 construction start	Flagstaff 345/69kV Interconnection	This project will serve projected need for electric energy in APS' northern service area. The project will improve reliability and continuity of service for the growing communities in northern Arizona.	A Certificate of Environmental Compatibility is not needed for this project.
2009 construction start	Palo Verde-TS5 500kV line	This line will serve projected need for electric energy in the area immediately north and west of the Phoenix Metropolitan area. It will increase the import capability to the Phoenix Metropolitan area as well as increase the export capability from the Palo Verde hub. This is a joint participation project with APS as the project manager.	Certificate of Environmental Compatibility issued 8/17/05 (Case No. 128, Decision No. 68063, Palo Verde Hub to TS5 500kV Transmission project). APS, as project manager, holds the CEC.

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Status	Project	Justification	CEC needed
2009 construction start	Second Knoll loop-in of Coronado-Cholla 500kV line	This project will be needed to serve projected need for electric energy in Show Low and the surrounding communities.	A Certificate of Environmental Compatibility is not needed for this project.
2009 construction start	VV1 loop-in of Navajo-Westwing 500kV line	This project will serve projected electrical needs and provide support to the existing subtransmission system in the Verde Valley and Prescott areas.	A Certificate of Environmental Compatibility is not needed for this project.
2009 construction start	Devers-Palo Verde No. 2 500 kV Line	This 500 kV line will increase transfer capability between Arizona and Southern California.	No information filed
2008 construction start	Upgrade Coronado 500kV Transmission System	Add series compensation to Coronado-Silverking 500kV line.	Not required
<b>2010 completion</b>			
2008 construction start	Raceway-Pinnacle Peak 500kV line	This line is a result of joint planning through the SWAT forum. The project is needed to increase the import capability to the Phoenix Metropolitan area and strengthen the transmission system on the east side of the Phoenix Metropolitan valley. This will be a joint participation project with APS as the project manager. The loop-in of a Navajo-Westwing 500kV transmission line into the Raceway 500kV substation will be part of this project.	An application for a Certificate of Environmental Compatibility is expected to be filed in 2006.
2008 construction start	Series Capacitor Upgrade Project on Navajo Southern 500 kV Transmission System	The upgrading of the series capacitors allows for the increase in transfer capability from northern Arizona to central Arizona and has an economic value from an adequacy stand point. APS, SRP, TEP, BOR/Western are participating.	No information filed
<b>2011 completion</b>			
2009 construction start	Pinal West - Southeast Valley/Browning 500 kV line (Reference SRP Ten-Year Plan 2006 filing)	To deliver Palo Verde area generation to the Santa Rosa 500 / 230 kV Substation	CEC Ordered in Case 126, Issued August 25, 2005
2010 construction start	Mazatzal loop-in of Cholla-Pinnacle Peak 345kV line	This substation will serve projected need for electric energy in the area of Payson and the surrounding communities. Additionally, improved reliability and continuity of service will result for the growing communities in the Payson area.	A Certificate of Environmental Compatibility is not needed for this project.
<b>2012 completion</b>			
2008 construction start	Palo Verde-North Gila 500kV	This line is expected to be an APS/SRP joint project. As a new transmission path to Yuma area, this 500kV line will provide transmission capacity required to supplement limited transmission and generation resources in the Yuma area.	An application for a Certificate of Environmental Compatibility has not yet been filed.